APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/037,882	01/04/2002	Jesse Ambrosina	56231-327 (MKS-90)	4785

7590 05/01/2003

McDermott, Will & Emery
28 State Street
Boston, MA 02109

EXAMINER
LAU, TUNG S

ART UNIT	PAPER NUMBER
2863	

DATE MAILED: 05/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/037,882	AMBROSINA ET AL.
	Examiner	Art Unit
	Tung S Lau	2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>04 January 2002</u> .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-30</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-10,12,13,16-25,27 and 28</u> is/are rejected.

7)☒ Claim(s) <u>11,14,15,26,29 and 30</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>5</u> .

4)☐ Interview Summary (PTO-413) Paper No(s). _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
in the United States before the invention by the applicant for patent or (2) a patent granted on an application for
patent by another filed in the United States before the invention by the applicant for patent, except that an
international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this
subsection of an application filed in the United States only if the international application designated the United
States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3-10, 12, 13, 16-24, 27 and 28 are rejected under 35 U.S.C. 102(e) as

being anticipated by Yamagishi et al. (US patent Application 2002/0038669).

Regarding claim 1:

        Yamagishi discloses a system for dividing a single mass flow into two or

more secondary flows of desired ratios comprising A) an inlet adapted to receive

the single mass flow; (abstract) B) at least two secondary flow lines connected to

the inlet, each flow line including (abstract), a flow meter measuring flow through

the flow line and providing a signal indicative of the measured flow, and a valve

controlling flow through the flow line based upon a signal indicative of desired

flow rate (page 1, section 0012); C) user interface adapted to receive at least one

desired ratio of flow (fig. 3, unit 35, 36, 37); and D) a controller connected to the

flow meters (fig. 3, unit 35,36,37) the valves (fig. 1, unit 10, 11, 41, 8), and the

user interface, and programmed to, receive the desired ratio of flow through the

user interface (fig. 3, unit 35), receive the signals indicative of measured flow

from the flow meters, calculate an actual ratio of flow through the flow lines

based upon the measured flow (page 1, section 0012), compare the actual ratio

to the desired ratio, calculate the desired flow through at least one of the flow

lines if the actual ratio is unequal to the desired ratio (page 4, section 0055), and

provide a signal indicative of the desired flow to at least one of the valves (page

1, section 0012-0017).

Regarding claim 16:

Yamagishi discloses a method for dividing a single mass flow into two or

more secondary mass flows of desired ratios (abstract) comprising A) dividing a

single mass flow into at least two flow lines (fig. 2, unit 23); B) measuring mass

flow through each flow line (fig. 1, unit 41, 9, 8, 11, 10); Q receiving at least one

desired ratio of mass flow (page 4, unit 0055); D) calculating an actual ratio of

mass flow through the flow lines based upon the measured flows(page 1, section

0012); E) calculating a desired flow through at least one of the flow lines if the

actual ratio does not equal the desired ratio (page 2, section 0013); and F)

regulating the flow line to the desired flow (page 1, section 0015-0016).

Regarding claims 3, 4, 5, 6, 8, 9, 10, 18, 19, 20, 22, 24 :

Yamagishi also discloses:

A system wherein the flow lines comprise first and second flow lines (fig. 1,
unit41, , 9, 8, 11, 10); and the controller is programmed to, provide a signal to the
valve of the first flow line indicative of a first desired flow (fig. 2, unit 26, 27, 25),
calculate a second desired flow if the actual ratio is unequal to the desired ratio
(page 1, section 0012), and provide a signal to the valve of the second flow line
indicative of the second desired flow (page 4, section 0055).

A system wherein the first desired flow causes the valve of the first line to fully
open (page 3, section 0045).

A system wherein the ratio of flow is equal to the flow through the second flow
line divided by the flow through the first flow line (page 4, section 0055).

A system wherein the ratio of flow is equal to the flow through the second flow
line divided by the flow through the first flow line (page 4, section 0055, fig. 2,
section 23, 29, 28).

A system wherein an allowable range for the desired ratio of flow is between
about 1 and about 10 (page 4, section 0055).

Regarding claim 7:

Yamagishi also discloses:

A system wherein: the flow lines comprise first, second and third flow lines; the
user interface is adapted to receive a desired ratio of flow for the second and the
first flow lines (fig. 1, unit 40, 9, 8) and a desired ratio of flow for the third and the
first flow lines (fig. 1, unit 11, 10); and the controller is programmed to (fig. 2, unit

25), provide a signal to the first valve indicative of a first desired flow (fig. 1, unit

25), receive the desired ratios of flow through the user interface (page 4, section

0055), receive the signals indicative of measured flow from the flow meters (page

4, section 0055), calculate an actual ratio of flow for the second and the first flow

lines based upon the measured flows through the second and the first flow lines

(page 4, section 0055), calculate a second desired flow if the actual ratio for the

second and the first flow lines is unequal to the desired ratio for the second and

the first flow lines (page 4, section 0055), provide a signal to the valve of the

second flow line indicative of the second desired flow, calculate an actual ratio of

flow for the third and the first flow lines based upon the measured flows through

the third and the first flow lines (page 4, section 0055), calculate a third desired

flow if the actual ratio for the third and the first flow lines is unequal to the desired

ratio for the third and the first flow lines, and provide a signal to the valve of the

third flow line indicative of the third desired flow (page 1, section 0012-0016).

Regarding claims 12, 13, 27, 28:

Yamagishi also discloses:

A system further comprising a pressure sensor measuring pressure in one of the

inlet and the secondary flow lines, and connected to the controller to provide the

pressure measurement to the controller (page 1, section 0018, page 2, 0020, fig.

3, unit 35).

A system wherein the pressure sensor measures pressure in the inlet (fig. 1, unit

41, (page 1, section 0018, page 2, 0020) secondary flow lines (fig. 1, unit 11, 10).

Regarding claim 17:

Yamagishi also discloses:

A method according to claim 16, wherein the single mass flow is divided into first

and second flow lines (fig. 1, unit8, 8); the first flow line is regulated to a first

desired flow; a second desired flow is calculated using the desired ratio and the

first desired flow if the actual ratio is unequal to the desired ratio; and the second

flow line is regulated to the second desired flow (fig. 3, unit 35, page 4, section

0055).

Regarding claims 21, 23:

Yamagishi also discloses:

A method wherein the single mass flow is divided into first, second and third flow

lines; first and second desired ratios of mass flow are received; the first flow line

is regulated to a first desired flow (page 4, section 0055, fig.1, unit 9,8,11,10); a

second desired flow is calculated using the first desired ratio and the first desired

flow if the actual ratio of the first and the second flow lines is unequal to the

desired first ratio (page 4, section 0055, fig. 3, unit 35); the second flow line is

regulated to the second desired flow; a third desired flow is calculated using the

second desired ratio and the first desired flow if the actual ratio of the first and

the third flow lines is unequal to the desired second ratio; and the third flow line is

regulated to the third desired flow (page 1, section 0011-0016, fig. 3, unit 35).

A method wherein the ratios of flow of the first and the second flow lines are

equal to the flow through the second flow line divided by the flow through the first

flow line (page 4, section 0055, fig. 1, unit 41, 9, 8, 11, 10, fig. 3, unit 35), and

the ratios of flow of the first and the third flow lines are equal to the flow through

the third flow line divided by the flow through the first flow line (page 4, section

0055 fig. 1, unit 41, 9, 8, 11, 10, fig. 3, unit 35).

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section
102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the
subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill
in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the
invention was made.

a. Claims 2 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Yamagishi et al. (US patent Application 2002/0038669) in view of Goldman

et al. (U.S. Patent 4,369,031).

Yamagishi discloses a method including the subject matter discussed above

except the use of thermal-based flow meter. Goldman discloses the use of

thermal-based flow meter to improve uniformity measurement (col. 2, lines 19-51).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yamagishi to have the use of thermal-based flow meter taught by Goldman in order to improve uniformity measurement (col. 2, lines 19-51).

Claim Objections

3.   Claims 11, 14, 15, 26, 29 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitation of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: prior art fail to teach the use of Kpa(c-csp)+Kia over the integrate value of (c-csp), where Kp is a proportional gain and Ki is an integral gain ratio control and c is the actual flow and csp is the desired flow ratio. The flow line equal to Kp(Pin-Pt)+Ki(Pin-Pt), where Kp is proportional gain control, Kiis integral gain, Pin is pressure inlet and Pt is operating pressure threshold.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

4. Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Tung S Lau whose telephone number is 703-305-3309.

The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, John Barlow can be reached on 703-308-3126. The fax phone numbers for

the organization where this application or proceeding is assigned are 703-308-5841 for

regular communications and 703-308-5841 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is 703-308-0956.

TC2800 RightFAX Telephone Numbers : TC2800 Official Before-Final RightFAX - (703)

872-9318, TC2800 Official After-Final RightFAX - (703) 872-9319

TC2800 Customer Service RightFAX - (703) 872-9317

TL April 28, 2003

John Barlow
Supervisory Patent Examiner
Technology Center 2800